

## Datasheet - AZM 200SK-T-1P2PWA

Solenoid interlock / AZM 200



(Minor differences between the printed image and the original product may exist!)

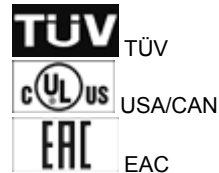
- **NOTICE: Available until 2020.12.31 (substitute: AZM201)**
- Thermoplastic enclosure
- Guard locking monitored
- Electronic contact-free, coded system
- Max. length of the sensor chain 200 m
- Self-monitoring series-wiring of 31 sensors
- 3 LEDs to show operating conditions
- Sensor technology permits an offset between actuator and interlock of  $\pm 5$  mm vertically and  $\pm 3$  mm horizontally
- Intelligent diagnosis
- Manual release

### Ordering details

|                          |                    |
|--------------------------|--------------------|
| Product type description | AZM 200SK-T-1P2PWA |
| Article number           | 101196029          |
| EAN Code                 | 4030661363509      |
| eCl@ss                   | 27-27-26-03        |

### Approval

Approval



### Classification


#### Interlocking function:

|                  |                                          |
|------------------|------------------------------------------|
| Standards        | EN ISO 13849-1, IEC 61508, IEC 60947-5-3 |
| PL               | bis e                                    |
| Control category | bis 4                                    |
| PFH              | $4.0 \times 10^{-9}/h$                   |
| PFD value        | $1.0 \times 10^{-4}$                     |
| SIL              | bis 3                                    |
| Mission time     | 20 Years                                 |

|                                |                                          |
|--------------------------------|------------------------------------------|
| Classification                 | PDF-M                                    |
| <b>Guard locking function:</b> |                                          |
| Standards                      | EN ISO 13849-1, IEC 61508, IEC 60947-5-3 |
| PL                             | up d                                     |
| Control category               | up 2                                     |
| PFH value                      | $2.5 \times 10^{-9}/h$                   |
| PFD value                      | $2.2 \times 10^{-4}$                     |
| SIL                            | up 2                                     |
| Mission time                   | 20 Years                                 |

## Global Properties

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|                                                                                                                        |                                                         |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Permanent light                                                                                                        | AZM 200                                                 |
| Standards                                                                                                              | EN 60947-5-1, IEC 61508, EN ISO 13849-1, EN ISO 13849-1 |
| Compliance with the Directives (Y/N)  | Yes                                                     |
| Suitable for safety functions (Y/N)                                                                                    | Yes                                                     |
| Series-wiring                                                                                                          | up to 31 components                                     |
| Length of the sensor chain                                                                                             | max. 200 m                                              |
| Active principle                                                                                                       | inductive                                               |
| Duty cycle ED                                                                                                          | 100 %                                                   |
| Materials                                                                                                              |                                                         |
| - Material of the housings                                                                                             | Plastic, glass-fibre reinforced thermoplastic           |
| Housing coating                                                                                                        | None                                                    |
| Weight                                                                                                                 | 557                                                     |
| Guard locking monitored (Y/N)                                                                                          | Yes                                                     |
| Actuator monitored (Y/N)                                                                                               | No                                                      |
| Idle assignable pushbutton and LED (Y/N)                                                                               | No                                                      |
| Reaction time                                                                                                          | $\leq 60$                                               |
| Duration of risk                                                                                                       | $> 120$                                                 |
| Time to readiness                                                                                                      | 4000                                                    |
| Recommended actuator                                                                                                   | AZ/AZM 200-B1                                           |

## Mechanical data

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|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Design of electrical connection  | Screw connection                                                              |
| Cable section                    |                                                                               |
| - Min. Cable section             | 0,25                                                                          |
| - Max. Cable section             | 1.5                                                                           |
| AWG-Number                       | 23 - 15                                                                       |
| Mechanical life                  | $\geq 1.000.000$ operations                                                   |
| notice                           | All indications about the cable section are including the conductor ferrules. |
| restistance to shock             | 30 g / 11 ms                                                                  |
| Resistance to vibration          | 10 ... 55 HZ, Amplitude 1 mm                                                  |
| Emergency unlocking device (Y/N) | No                                                                            |
| Manual release (Y/N)             | Yes                                                                           |
| Emergency release (Y/N)          | No                                                                            |
| Latching force                   | 30                                                                            |
| Clamping force F                 | 2000 N                                                                        |
| Max. Actuating speed             | $\leq 0,2$                                                                    |

## Ambient conditions

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|                                  |     |
|----------------------------------|-----|
| Ambient temperature              |     |
| - Min. environmental temperature | -25 |

|                                                         |                      |
|---------------------------------------------------------|----------------------|
| - Max. environmental temperature                        | +50                  |
| Storage and transport temperature                       |                      |
| - Min. Storage and transport temperature                | -25                  |
| - Max. Storage and transport temperature                | +85                  |
| Relative humidity                                       | 30... 95             |
| - non-condensing                                        |                      |
| Protection class                                        | IP67 to IEC/EN 60529 |
| Protection rating                                       | II                   |
| Air clearances and creepage distances To IEC/EN 60664-1 |                      |
| - Rated impulse withstand voltage $U_{imp}$             | 0,8 kV               |
| - Overvoltage category                                  | III                  |
| - Degree of pollution                                   | 3                    |

## Electrical data

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|                                                        |                                         |
|--------------------------------------------------------|-----------------------------------------|
| Number of auxiliary contacts                           | 0                                       |
| Number of safety contacts                              | 2                                       |
| Cross circuit/short circuit recognition possible (Y/N) | Yes                                     |
| Power to unlock                                        | No                                      |
| Power to lock                                          | Yes                                     |
| Supply voltage $U_B$                                   |                                         |
| - Min. supply voltage                                  | 20.4 V DC                               |
| - Max. supply voltage                                  | 26.4 V DC                               |
| Switch frequency                                       | 1                                       |
| Rated insulation voltage $U_i$                         | 32 V DC                                 |
| Operating current $I_e$                                | 1.2 A                                   |
| Utilisation category                                   | DC-12, DC-13                            |
| No-load current $I_0$                                  | 0,6 A                                   |
| Device insulation                                      | ≤ 4 A if used in accordance with UL 508 |

## Electrical data - Safety inputs

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|                               |                                               |
|-------------------------------|-----------------------------------------------|
| Safety inputs                 | X1 and X2                                     |
| Rated operating voltage $U_e$ | - 3 V ... 5 V ( Low)<br>15 V ... 30 V ( High) |
| Operating current $I_e$       | > 2 mA / 24 V                                 |

## Electrical data - Safety outputs

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|                         |                                        |
|-------------------------|----------------------------------------|
| Safety outputs          | Y1 and Y2                              |
| Fuse rating             | short-circuit proof, p-type            |
| Rated operating voltage | 0 V ... 4 V under Supply voltage $U_B$ |
| Residual current $I_r$  | ≤ 0,5 mA                               |
| Operating current $I_e$ | 0,25 A                                 |
| Utilisation category    | DC-12, DC-13                           |

## Electrical data - Diagnostic output

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|                                           |                                                  |
|-------------------------------------------|--------------------------------------------------|
| Serial diagnostics (Y/N)                  | No                                               |
| Fuse rating                               | p-type, short-circuit proof                      |
| Operating current $I_e$                   | 0,05 A                                           |
| Utilisation category                      | DC-12, DC-13                                     |
| Wiring capacitance for serial diagnostics | -                                                |
| diagnostic signals                        | guard door closed and interlocking device locked |

Operating principle of the diagnostic output  
notice

The short-circuit proof diagnostic output OUT can be used for central visualisation or control tasks, e.g. in a PLC.  
The diagnostic output is not a safety-relevant output!

## Electrical data - Solenoid control IN

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|                               |                                               |
|-------------------------------|-----------------------------------------------|
| Rated operating voltage $U_e$ | - 3 V ... 5 V ( Low)<br>15 V ... 30 V ( High) |
| Operating current $I_e$       | typically 10 mA / 24 V, dynamically 20 mA     |

## LED switching conditions display

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|                                        |            |
|----------------------------------------|------------|
| LED switching conditions display (Y/N) | Yes        |
| LED switching conditions display       |            |
| - Supply voltage $U_B$                 | green LED  |
| - switching condition                  | yellow LED |
| - Error functional defect              | red LED    |

## ATEX

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|                                           |      |
|-------------------------------------------|------|
| Explosion protection categories for gases | None |
| Explosion protected category for dusts    | None |

## Dimensions

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|                          |     |
|--------------------------|-----|
| Dimensions of the sensor |     |
| - Width of sensor        | 40  |
| - Height of sensor       | 220 |
| - Length of sensor       | 50  |

## notice

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As long as the actuating unit remains inserted in the solenoid interlock, the unlocked safety guard can be relocked. The safety outputs then will be enabled again; opening the safety guard therefore is not required.

## Included in delivery

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|                      |                           |
|----------------------|---------------------------|
| Included in delivery | AZM 200<br>Triangular key |
|----------------------|---------------------------|

Actuators must be ordered separately.

## Indication legend

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see drawing: Wiring example

With the represented power-to-unlock principle, the solenoid is energised to enable the opening.

With the alternative power-to-lock principle (not represented), the solenoid must be energised to keep the device in closed condition.

## Ordering code

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AZM 200(1)(2)-T-(3)(4)

(1)

*without*

**B** Guard locking monitored

Actuator monitored

(2)

|                |                                                                                             |
|----------------|---------------------------------------------------------------------------------------------|
| <b>SK</b>      | Screw connection                                                                            |
| <b>CC</b>      | Spring pulley connection                                                                    |
| <b>ST1</b>     | connector M23 x 1, (8+1-pole)                                                               |
| <b>ST2</b>     | connector M12 x 1, 8-pole                                                                   |
| <b>(3)</b>     |                                                                                             |
| <b>1P2P</b>    | 1 Diagnostic output and 2 Safety outputs, p-type                                            |
| <b>1P2PW</b>   | gleich - 1P2P, combined diagnostic signal: guard door closed and interlocking device locked |
| <b>SD2P</b>    | serial diagnostic output and 2 Safety outputs, p-type                                       |
| <b>(4)</b>     |                                                                                             |
| <i>without</i> | Power to unlock                                                                             |
| <b>A</b>       | Power to lock                                                                               |

## Documents

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**Operating instructions and Declaration of conformity** (pl) 372 kB, 07.06.2017

Code: mrl\_azm200t\_pl

**Operating instructions and Declaration of conformity** (jp) 450 kB, 09.10.2017

Code: mrl\_azm200t\_jp

**Operating instructions and Declaration of conformity** (es) 349 kB, 31.05.2017

Code: mrl\_azm200t\_es

**Operating instructions and Declaration of conformity** (cn) 507 kB, 23.11.2018

Code: mrl\_azm200t\_cn

**Operating instructions and Declaration of conformity** (en) 348 kB, 26.09.2017

Code: mrl\_azm200t\_en

**Operating instructions and Declaration of conformity** (pt) 355 kB, 26.05.2017

Code: mrl\_azm200t\_pt

**Operating instructions and Declaration of conformity** (fr) 353 kB, 03.07.2017

Code: mrl\_azm200t\_fr

**Operating instructions and Declaration of conformity** (it) 349 kB, 28.06.2017

Code: mrl\_azm200t\_it

**Operating instructions and Declaration of conformity** (de) 336 kB, 26.09.2017

Code: mrl\_azm200t\_de

**Operating instructions and Declaration of conformity** (nl) 398 kB, 03.08.2018

Code: mrl\_azm200t\_nl

**Operating instructions and Declaration of conformity** (da) 312 kB, 22.08.2013

Code: mrl\_azm200t\_da

**Operating instructions and Declaration of conformity** (sv) 343 kB, 07.08.2015

Code: mrl\_azm200t\_sv

**Wiring example** (99) 21 kB, 12.01.2009

Code: kazm2l26

**Diagnosis tables** (en) 136 kB, 12.01.2009

Code: b\_tabp02

**Diagnosis tables** (de) 135 kB, 12.01.2009

Code: b\_tabp01

**Brochure** (de) 6 MB, 15.02.2018

Code: b\_css\_brosch09\_de

**Brochure** (en) 6 MB, 15.02.2018

Code: b\_css\_brosch09\_en

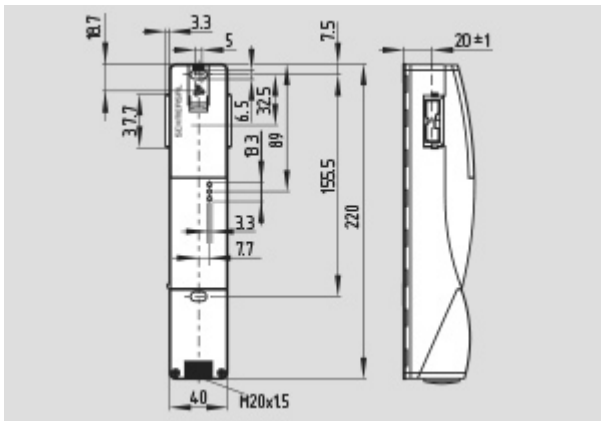
**TÜV certification** (de, en) 848 kB, 09.08.2017

Code: z\_azmp04

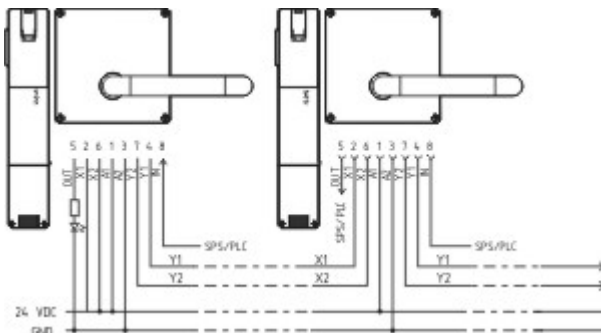
**EAC certification** (ru) 809 kB, 05.10.2015

Code: q\_6040p17\_ru

## Images



Dimensional drawing (miscellaneous)



Wiring example

## System components

### Actuator



**101183465 - AZ/AZM 200-B1-LT**

- Actuators with return spring
- Actuator for sliding guards
- Tolerates up to max. 5 mm overtravel



**101183466 - AZ/AZM 200-B1-LTP0**

- Actuators with return spring
- Actuator for sliding guards
- Tolerates up to max. 5 mm overtravel



**101183469 - AZ/AZM 200-B1-RT**

- Actuators with return spring
- Actuator for sliding guards
- Tolerates up to max. 5 mm overtravel



**101183470 - AZ/AZM 200-B1-RTP0**

- Actuators with return spring
- Actuator for sliding guards
- Tolerates up to max. 5 mm overtravel



**101178681 - AZ/AZM 200-B30-LTAG1**

- Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101178668 - AZ/AZM 200-B30-LTAG1P1**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101186150 - AZ/AZM 200-B30-LTAG1P20**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability

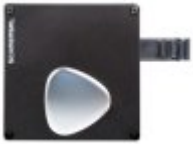
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**101192102 - AZ/AZM 200-B30-LTAG1P25**

- One-hand emergency exit,



- even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101181137 - AZ/AZM 200-B30-LTAG2**

- Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101181141 - AZ/AZM 200-B30-LTAG2P1**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101189020 - AZ/AZM 200-B30-LTAG2P20**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101192106 - AZ/AZM 200-B30-LTAG2P25**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability

**101178680 - AZ/AZM 200-B30-RTAG1**

- Actuator for hinged guards
- With door detection sensor T
- Easy and intuitive operation





- No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101178738 - AZ/AZM 200-B30-RTAG1P1**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101186144 - AZ/AZM 200-B30-RTAG1P20**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101192103 - AZ/AZM 200-B30-RTAG1P25**

- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability



**101181139 - AZ/AZM 200-B30-RTAG2**

- Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability

**101181143 - AZ/AZM 200-B30-RTAG2P1**

- One-hand emergency exit, even in de-energised condition
- Actuator for hinged guards
- With door detection sensor T
- Easy and intuitive operation



- No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability

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**101191659 - AZ/AZM 200-B30-RTAG2P20**



- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability

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**101192104 - AZ/AZM 200-B30-RTAG2P25**



- One-hand emergency exit, even in de-energised condition
  - Actuator for hinged guards
  - With door detection sensor T
  - Easy and intuitive operation
  - No risk of injury from protruding actuator
  - No supplementary door handles required
  - Does not protrude into the door opening
  - Various handles available
- Greater mechanical stability